Auditor Pro

Peak, RMS and spectrum meter VST plug-in

User manual v1.0.5
January 2009

1. Contents

2. Description

Auditor Pro is a Virtual Studio Technology (VST) plug in, that can analyze the following properties:

- Left/right peak amplitude, with and without incorporation of inter-sample peaks;
- Left/right RMS level, using 'true' RMS or AES17 specification;
- Mid/side peak amplitude;
- Mid/side RMS level, using 'true' RMS or AES17 specification;
- Correlation (stereo phase);
- Signal power spectrum (both channels independently or using by acoustic summation)

Additional features are:

- Sample rate support of up to 192 kHz;
- Output scales according to K12, K14 or K20;
- Real-time or time-integrated power spectrum.

3. Demo limitations

The DEMO version of Auditor Pro has the following limitations:

- Inter Sample Peak (ISP) function is disabled;
- Output scales K12, K14 and K20 are disabled;
- AES17 RMS measurement disabled;
- Combined (summed) power spectrum disabled.

The full version does not have these limitations.

4. Installation

Auditor Pro comes without installation program. The installation can be performed manually by the following two steps:

- Extract the file 'jb_auditor_pro.dll' from the corresponding zip file, using an (un)zip program or using the build-in functionality from Microsoft Windows XP or Vista;
- Store the dll file in the directory where your host program stores all VST plugins. This directory depends on the host program. Please refer to the manual of your host program to determine the correct directory.

If you have used the demo version of this plugin (with the word 'demo' in the file name) and would like to install the full version, or if you have earlier beta versions, you are strongly advised to delete all earlier versions of Auditor Pro before installing newer versions.

5. Usage

5.1 Graphical User Interface

The Graphical User Interface (GUI) of Auditor Pro is shown in Figure 1. The GUI is split in several parts:

- A power spectrum meter
- Mid/side VU meters
- Left/right VU meters and correlation meter.

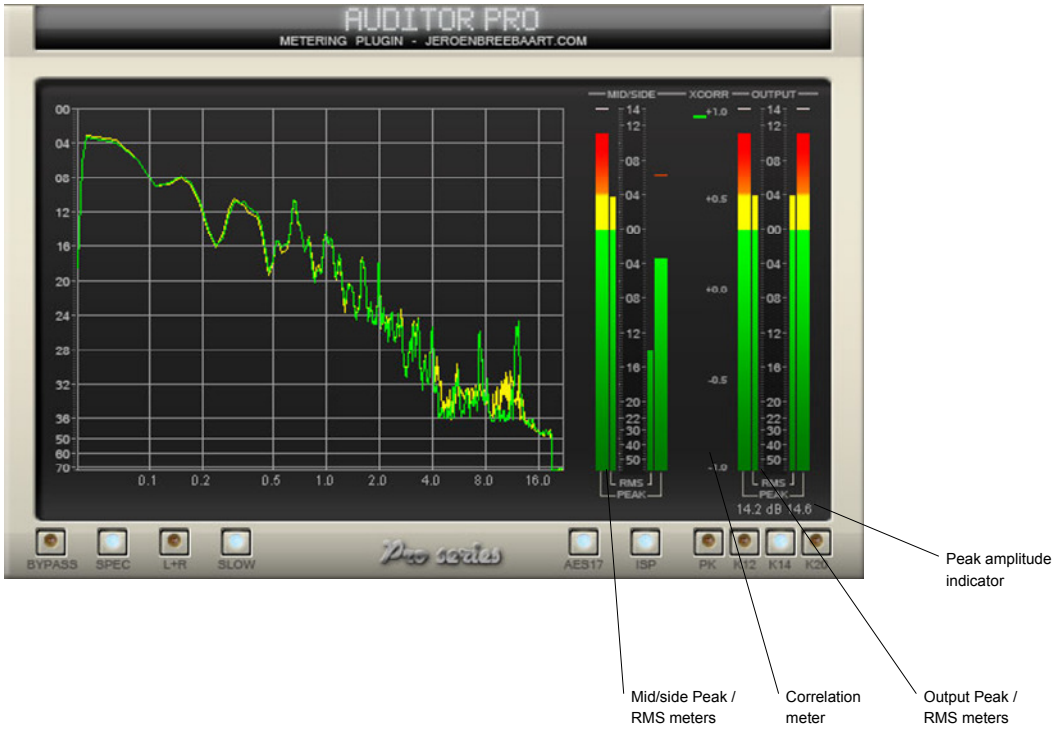

Figure 1 - Graphical User Interface of Auditor Pro.

5.2 Power spectrum meter

The power spectrum meter displays the power spectra of the input signals. There are three controls that modify its behavior:

SPEC: This switch is used to enable or disable the power spectrum display.
L+R: This switch enables the single spectrum mode: if enabled, only a single power spectrum will be shown (using acoustical summation of the power spectra of both channels).
SLOW: By default the spectrum is computed using a time constant of 300 ms. This switch will enable a longer accumulation window of 5 seconds to estimate the power spectrum.
AES17: If this switch is enabled, signal power is computed according to the AES17 standard specification. This means that a sine wave with maximum amplitude of x dB will have a reported power of x dB. If disabled, a 'true' RMS will be measured and there will be a 3.01 dB difference between reported peak and RMS levels.
PK/K12/K14/K20: These switches allow definition of the level corresponding to digital full scale (0, 12, 14 or 20 dB).
BYPASS: Freeze the current spectrum values.

The numerical data can be examined by moving the mouse over the spectrum while pressing the left mouse button. The current frequency and the spectrum levels will be indicated as text in the display. To remove the numerical data, right-click the mouse on the display.

5.3 Mid/side VU meters

The Mid/side VU meters provide RMS and peak values of the mid (m) and side (s) signals according to:

$$m(t) = \frac{l(t) + r(t)}{2},$$
$$s(t) = \frac{l(t) - r(t)}{2},$$

with l and r the left and right signals, respectively. The following controls influence the values reported by the Mid/Side VU meters:

AES17: If this switch is enabled, signal power is computed according to the AES17 standard specification. This means that a sine wave with maximum amplitude of x dB will have a reported power of x dB. If disabled, a 'true' RMS will be measured and there will be a 3.01 dB difference between reported peak and RMS levels.
PK/K12/K14/K20: These switches allow definition of the level corresponding to digital full scale (0, 12, 14 or 20 dB).

5.4 Left/Right VU meters and correlation meter

This section displays the amplitude, RMS and peak amplitude during the last 10 seconds. The exact dB value of the latter is given by the peak amplitude indicator just below the VU meters. By clicking on the peak amplitude indicator, all peak amplitude values are being reset.

The following controls modify the behavior of the left/right VU meters:

AES17: If this switch is enabled, signal power is computed according to the AES17 standard specification. This means that a sine wave with maximum amplitude of x dB will have a reported power of x dB. If disabled, a 'true' RMS will be measured and there will be a 3.01 dB difference between reported peak and RMS levels.
PK/K12/K14/K20: These switches allow definition of the level corresponding to digital full scale (0, 12, 14 or 20 dB).
ISP: This function enables the Inter-Sample Peak (ISP) function that takes the output waveform in-between the sampled values into account.

The correlation meter displays the unweighted, time-averaged normalized cross-correlation between the left and right channels.

6. Disclaimers

VST is a trademark of Steinberg Media Technologies GmbH.

7. Change log

Version 1.0.5

- Added numerical spectrum data readout by moving mouse over the spectrum display while keeping the left-mouse button pressed.
- Fixed a bug that caused erroneous data processing on some hosts using 64-bits audio data.

Version 1.0.4

- New feature: possibility to reset peak hold values by clicking on peak amplitude value indicator.
- Fixed wrong range issue with parameters from scale selector.